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16. ABSTRACT
Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivided according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

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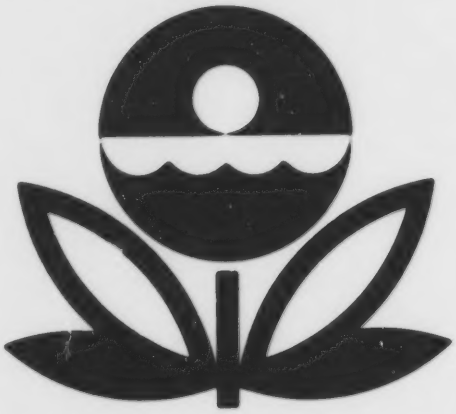

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REPORT
ON
GUNTERSVILLE RESERVOIR
MARSHALL AND JOHNSON COUNTIES
ALABAMA

EPA REGION IV

WORKING PAPER No. 228

WITH THE COOPERATION OF THE

ALABAMA WATER IMPROVEMENT COMMISSION

AND THE

ALABAMA NATIONAL GUARD

JULY 1976

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FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to freshwater lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point source discharge reduction and nonpoint source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's freshwater lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by the U.S. Environmental Protection Agency and to augment plans implementation by the states.

ACKNOWLEDGEMENTS

The staff of the National Eutrophication Survey (Office of Research and Development, U.S. Environmental Protection Agency) expresses sincere appreciation to the Alabama Water Improvement Commission for professional involvement and to the Alabama National Guard for conducting the tributary sampling phase of the Survey.

E. John Williford, Chief, Surveillance and Monitoring Section; and John C. Chitwood, Biologist, Surveillance and Monitoring Section; and Sam L. Coleman, Water Quality Planning Section; and M. H. Floyd, Engineer, Surveillance and Monitoring Section; and Truman Green, Engineer, Municipal Waste Control Section; and Tim McCartha, Biologist, Surveillance and Monitoring Section; and James E. McIndoe, Engineer, Water Quality Planning Section; and Richard T. Maddox, Engineer, Industrial Waste Control Section; and James T. White, Engineer, Municipal Waste Control Section provided invaluable lake documentation and counsel during the course of the Survey.

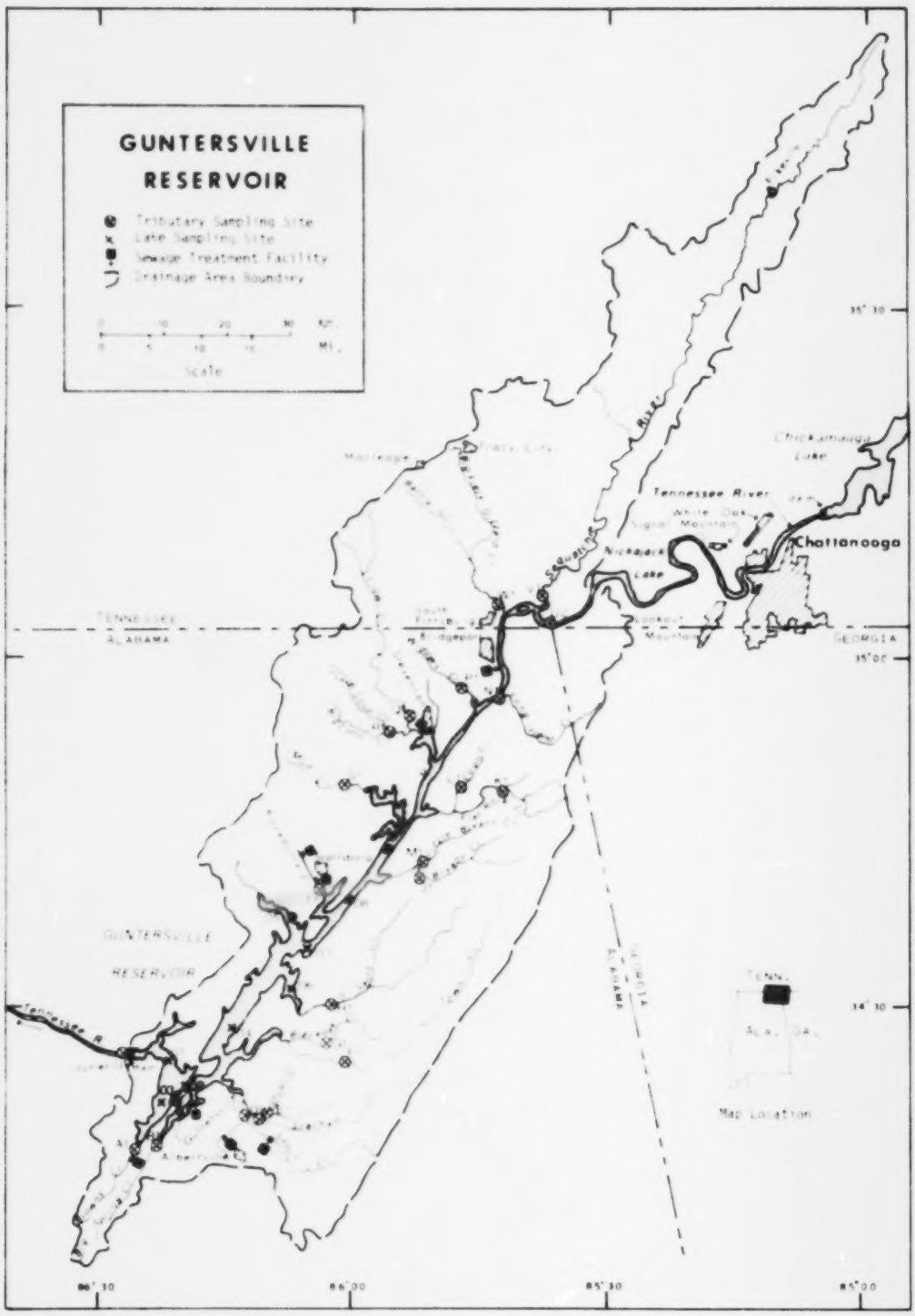
Major General Charles A. Rollo, Adjutant General of Alabama, and Project Officer Lt. Col. Wash B. Ray, who directed the volunteer efforts of the Alabama National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF ALABAMA

LAKE NAME	COUNTY
Bankhead	Walker
Gantt	Covington
Guntersville	Marshall, Johnson
Holt Lock and Dam	Tuscaloosa
Lay	Chilton, Coosa
Martin	Elmore, Tallapoosa
Mitchell	Coosa, Chilton
Pickwick	Colbert, Lauderdale (Tishomingo in MS and Hardin in TN)
Purdy	Jefferson, Shelby
Weiss	Cherokee
Wilson	Lauderdale, Colbert, Lawrence


GUNTERSVILLE
RESERVOIR
Tributary Sampling Site
Lake Sampling Site
Sewage Treatment Facility
Drainage Area Boundary
Scale
Tennessee River
Chattanooga
Nickajack
Lake
TENNESSEE
ALABAMA
GEORGIA
35°30
35°00
34°30
86°30
86°00
85°30
85°00
Map Location

REPORT ON GUNTERSVILLE RESERVOIR, ALABAMA

STORET NO. 0104

I. CONCLUSIONS

A. Trophic Condition:*

Guntersville Reservoir on the Tennesee River is considered eutrophic, i.e., nutrient rich and highly productive, based upon evaluation of Survey data. Whether such nutrient enrichment is to be considered beneficial or deleterious is determined by its actual or potential impact upon designated beneficial water uses of each lake.

Potential productivity as measured by algal assay control yields and chlorophyll a levels is moderate. Low phosphorus concentrations in the reservoir are likely a result of active assimilation by the large macrophyte population throughout the lake. Oxygen depression was observed at several sites sampled in the lake. The phytoplankton was dominated by pollution-tolerant genera.

B. Rate-Limiting Nutrient:

Algal assay results indicate that Guntersville Reservoir was limited by available phosphorus levels. Spikes with phosphorus, and nitrogen and phosphorus simultaneously resulted in increases in assay yield. Addition of nitrogen alone did

*See Appendix E.

not stimulate a growth response. The mean ratio of inorganic nitrogen to orthophosphorus (N/P) in sampled waters was 14/1 or greater on all sampling occasions suggesting primary limitation by phosphorus.

C. Nutrient Controllability:

1. Point sources -

The mean annual phosphorus load from known point sources directly impacting the reservoir amounts to less than 3.0% of the total lake nutrient budget. The city of Scottsboro contributed approximately 1.1% from two wastewater treatment plants and the city of Guntersville contributed 1.0%. Elimination of these direct sources would have little impact on the total nutrient load to the lake.

The present loading of 6.87 g $P/m^2/yr$ is approximately six times the oligotrophic and three times the eutrophic level proposed by Vollenweider (1975) for a lake of such volume and retention time. However, it should be noted that Vollenweider's model may not apply to lakes with short hydraulic retention times and the retention time of Guntersville Reservoir is only 13 days.

2. Nonpoint sources -

Loading to Guntersville Reservoir is largely uncontrollable; the Tennessee River contributes approximately 83% of the phosphorus and 80% of the nitrogen load to the lake.

However, included in the lake's "nonpoint" load are substantial point source contributions to upstream Tennessee River impoundments. For example, if the loading from point sources to Nickajack Reservoir, immediately above Guntersville Reservoir, were subtracted from the Guntersville inlet Station U(2), the Tennessee River phosphorus "nonpoint" load would be reduced over 25% (see National Eutrophication Survey (NES) Working Paper No. 446, Report on Nickajack Reservoir). Surrounding land uses and the nutrient control requirements for upstream Tennessee River impoundments should be analyzed before definitive recommendations on nutrient controllability in Guntersville Reservoir can be made.

II. LAKE AND DRAINAGE BASIN CHARACTERISTICS

Lake and drainage basin characteristics are itemized below. Lake morphometry and hydraulic retention time were provided by the Tennessee Valley Authority; tributary flow data were provided by the Alabama District Office of the U.S. Geological Survey (USGS) (outlet drainage area includes the lake surface area). Drainage areas for tributaries F(1), H(1), P(1), Q(1), U(1), and U(2), and flow for tributary U(1), were provided by the Tennessee Valley Authority. Tributary drainage areas plus the lake surface area do not equal the outlet drainage area probably because of differences in the pool elevation used by the different sources in their calculations. Precipitation values are estimated by methods as outlined in NES Working Paper No. 175. A table of metric/English conversions is included as Appendix A.

A. Lake Morphometry:

1. Surface area: 274.99 km^2.
2. Mean depth: 4.6 meters.
3. Maximum depth: 20.8 meters.
4. Volume: 1,255.703 x 10^6 m^3.
5. Mean hydraulic retention time: 13 days.

B. Tributary and Outlet:
(See Appendix B for flow data)

1. Tributaries -

Name	Drainage area (km^2)	Mean flow (m^3/sec)
A(1) Browns Creek	54.4	1.42
B(1) Big Spring Creek	118.9	3.15
C(1) Short Creek	290.1	7.29
D(1) Scarham Creek	152.0	3.13
E(1) Shoal Creek	79.5	1.60
F(1) Town Creek	567.2	7.69
G(1) Blackoak Creek	54.4	1.06
H(1) South Sauty Creek	435.1	6.29
J(1) Bryant Creek	126.9	2.44
K(1) Flat Rock Creek	73.3	1.52
L(1) Dry Creek (Coon Creek)	24.6	0.51
M(1) Little Bryant Creek	16.8	0.34
N(1) Long Island Creek	221.4	4.61
P(1) Widows Creek	112.7	2.45
Q(1) Crow Creek	712.3	8.86
R(1) Coon Creek	211.1	4.59
S(1) Mud Creek	191.4	4.19
T(1) Roseberry Creek	79.8	1.75
U(2) Tennessee River	56,436.1	957.06
V(1) Sequatchie River	1,566.9	30.99
W(1) Battle Creek	440.3	8.70
Minor tributaries and immediate drainage -	1,083.8	38.19
Totals	63,049.0	1,097.83

2. Outlet - U(1) Tennessee River 63,429.1 1,153.16

C. Precipitation:

1. Year of sampling: 175.9 cm.
2. Mean annual: 141.4 cm.

III. LAKE WATER QUALITY SUMMARY

Guntersville Reservoir was sampled three times during the open-water season of 1973 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from eight stations on the lake (Stations 1, 3, and 7 were sampled three times, Stations 4, 5, 6, and 8 were sampled twice, and Station 2 was sampled once) and from a number of depths at each station (see map, page v). During each visit, depth-integrated samples were collected from each station for chlorophyll a analysis and phytoplankton identification and enumeration. During the first visit, 18.9-liter depth-integrated samples were composited for algal assays. Maximum depths sampled were 18.3 meters at Station 1, 16.8 meters at Station 2, 7.6 meters at Station 3, 13.1 meters at Station 4, 9.1 meters at Station 5, 4.6 meters at Station 6, 4.6 meters at Station 7, and 7.6 meters at Station 8. For a more detailed explanation of NES methods, see NES Working Paper No. 175.

The results obtained are presented in full in Appendix C and are summarized in III-A for waters at the surface and at the maximum depth for each site. Results of the phytoplankton counts and chlorophyll a determinations are included in III-B. Results of the limiting nutrient study are presented in III-C.

GUNTERSVILLE RESERVOIR
STORET CODE 0104

PHYSICAL AND CHEMICAL CHARACTERISTICS

PARAMETER		(6/ 6/73) S*** = 6				(8/16/73) S*** = 6				(10/22/73) S*** = 6			
	N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)	N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)	N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)	
TEMPERATURE (DEG CENT)													
0.-1.5 M DEPTH	16	22.0- 27.7	24.2	0.0- 1.5	11	27.1- 30.7	28.5	0.0- 1.5	7	21.5- 23.1	22.3	0.0- 1.5	
MAX DEPTH**	6	20.9- 23.1	22.5	4.6- 18.3	6	27.1- 28.3	27.9	3.0- 16.8	4	20.4- 22.5	21.9	2.4- 17.1	
DISSOLVED OXYGEN (MG/L)													
0.-1.5 M DEPTH	11	7.2- 9.2	8.5	0.0- 1.5	7	4.6- 10.0	6.0	0.0- 1.5	3	7.0- 8.6	7.4	1.5- 1.5	
MAX DEPTH**	6	3.1- 8.7	4.0	4.6- 18.3	6	2.8- 6.0	5.4	3.0- 16.8	4	6.6- 8.2	7.6	2.4- 17.1	
CONDUCTIVITY (UMHOS)													
0.-1.5 M DEPTH	16	73.- 150.	135.	0.0- 1.5	11	120.- 176.	165.	0.0- 1.5	7	100.- 190.	103.	0.0- 1.5	
MAX DEPTH**	6	93.- 145.	140.	4.6- 18.3	6	133.- 171.	167.	3.0- 16.8	4	156.- 186.	180.	2.4- 17.1	
PH (STANDARD UNITS)													
0.-1.5 M DEPTH	16	7.2- 8.0	7.5	0.0- 1.5	10	7.2- 8.4	7.8	0.0- 1.5	7	7.5- 8.8	7.7	0.0- 1.5	
MAX DEPTH**	6	7.1- 7.5	7.3	4.6- 18.3	6	7.0- 7.7	7.3	3.0- 16.8	4	7.5- 8.4	7.7	2.4- 17.1	
TOTAL ALKALINITY (MG/L)													
0.-1.5 M DEPTH	16	10.- 58.	49.	0.0- 1.5	10	10.- 61.	56.	0.0- 1.5	6	54.- 66.	57.	0.0- 1.5	
MAX DEPTH**	6	21.- 56.	51.	4.6- 18.3	6	53.- 60.	56.	3.0- 16.8	4	53.- 61.	55.	2.4- 17.1	
TOTAL P (MG/L)													
0.-1.5 M DEPTH	16	0.032-0.065	0.048	0.0- 1.5	10	0.020-0.052	0.030	0.0- 1.5	6	0.034-0.053	0.044	0.0- 1.5	
MAX DEPTH**	6	0.044-0.098	0.050	4.6- 18.3	6	0.029-0.048	0.037	3.0- 16.8	4	0.039-0.054	0.050	2.4- 17.1	
DISSOLVED ORTHO P (MG/L)													
0.-1.5 M DEPTH	16	0.005-0.021	0.013	0.0- 1.5	10	0.005-0.022	0.009	0.0- 1.5	6	0.004-0.031	0.024	0.0- 1.5	
MAX DEPTH**	6	0.008-0.022	0.014	4.6- 18.3	6	0.007-0.019	0.012	3.0- 16.8	4	0.011-0.031	0.020	2.4- 17.1	
NO2+NO3 (MG/L)													
0.-1.5 M DEPTH	16	0.350-0.730	0.435	0.0- 1.5	10	0.100-0.440	0.215	0.0- 1.5	6	0.070-0.440	0.235	0.0- 1.5	
MAX DEPTH**	6	0.350-0.760	0.455	4.6- 18.3	6	0.130-0.430	0.285	3.0- 16.8	4	0.100-0.420	0.230	2.4- 17.1	
AMMONIA (MG/L)													
0.-1.5 M DEPTH	16	0.040-0.090	0.065	0.0- 1.5	10	0.060-0.130	0.095	0.0- 1.5	6	0.030-0.040	0.045	0.0- 1.5	
MAX DEPTH**	6	0.060-0.600	0.120	4.6- 18.3	6	0.090-0.190	0.100	3.0- 16.8	4	0.030-0.060	0.050	2.4- 17.1	
KJELDAHL N (MG/L)													
0.-1.5 M DEPTH	16	0.200-0.700	0.400	0.0- 1.5	10	0.400-1.400	0.600	0.0- 1.5	6	0.200-0.600	0.300	0.0- 1.5	
MAX DEPTH**	6	0.200-0.500	0.300	4.6- 18.3	6	0.200-1.000	0.450	3.0- 16.8	4	0.200-0.500	0.250	2.4- 17.1	
SECCHI DISC (METERS)													
	8	0.5- 1.5	0.7		6	0.9- 1.3	1.3		4	0.9- 1.5	1.1		

* N = NO. OF SAMPLES
** MAXIMUM DEPTH SAMPLED AT EACH SITE
*** S = NO. OF SITES SAMPLED ON THIS DATE

B. Biological Characteristics:

1. Phytoplankton -

Sampling Date	Dominant Genera	Algal Units per ml
06/08/73	1. Melosira	2,074
	2. Cryptomonas	358
	3. Flagellates	333
	4. Synedra	281
	5. Anabaena	102
	Other genera	591
	Total	3,739
08/16/73	1. Synedra	2,114
	2. Lyngbya	900
	3. Rhaphidiopsis	855
	4. Flagellates	810
	5. Cryptomonas	630
	Other genera	4,318
	Total	9,627
10/22/73	1. Nitzschia	11,575
	2. Anabaenopsis	4,548
	3. Cryptomonas	4,410
	4. Dactylococcopsis	3,858
	5. Synedra	3,445
	Other genera	11,437
	Total	39,273

2. Chlorophyll a -

Sampling Date	Station Number	Chlorophyll a (µg/l)
06/08/73	1	4.5
	2	4.4
	3	15.9
	4	5.1
	5	2.0
	6	4.2
	7	6.2
	8	1.9
08/16/73	1	9.2
	2	---
	3	9.0
	4	16.4
	5	---
	6	22.8
	7	17.5
	8	3.2
10/22/73	1	7.2
	2	---
	3	20.3
	4	---
	5	1.7
	6	---
	7	2.7
	8	---

C. Limiting Nutrient Study:

1. Stations 1 through 4 -

a. Autoclaved, filtered, and nutrient spiked

Spike(mg/l)	Ortho P Conc.(mg/l)	Inorganic N Conc.(mg/l)	Maximum Yield (mg/l-dry wt.)
Control	0.018	0.446	2.3
0.010 P	0.028	0.446	6.2
0.020 P	0.038	0.446	8.6
0.050 P	0.068	0.446	11.1
0.025 P + 0.5 N	0.043	0.946	15.2
0.050 P + 1.0 N	0.068	1.446	17.5
1.0 N	0.018	1.446	2.3

b. Filtered and nutrient spiked

Spike(mg/l)	Ortho P Conc.(mg/l)	Inorganic N Conc.(mg/l)	Maximum Yield (mg/l-dry wt.)
Control	0.007	0.448	0.1
0.010 P	0.017	0.448	2.1
0.020 P	0.027	0.448	6.2
0.050 P	0.057	0.448	9.8
0.025 P + 0.5 N	0.032	0.948	11.4
0.050 P + 1.0 N	0.057	1.448	12.7
1.0 N	0.007	1.448	0.2

2. Stations 5 through 8 -

a. Autoclaved, filtered, and nutrient spiked

Spike(mg/l)	Ortho P Conc.(mg/l)	Inorganic N Conc.(mg/l)	Maximum Yield (mg/l-dry wt.)
Control	0.018	0.570	5.1
0.010 P	0.028	0.570	8.3
0.020 P	0.038	0.570	13.3
0.050 P	0.068	0.570	12.9
0.025 P + 0.5 N	0.043	1.070	14.0
0.050 P + 1.0 N	0.068	1.570	21.5
1.0 N	0.018	1.570	5.4

b. Filtered and nutrient spiked

Spike(mg/l)	Ortho P Conc.(mg/l)	Inorganic N Conc.(mg/l)	Maximum Yield (mg/l-dry wt.)
Control	0.014	0.540	1.4
0.010 P	0.024	0.540	6.8
0.020 P	0.034	0.540	10.9
0.050 P	0.064	0.540	13.3
0.025 P + 0.5 N	0.039	1.040	11.9
0.050 P + 1.0 N	0.064	1.540	25.0
1.0 N	0.014	1.540	0.4

3. Discussion -

The control yield of the assay alga, Selenastrum capricornutum, indicates that the potential for primary production in Guntersville Reservoir was moderately high at the time of sample analyses. An increase in yield with the addition of phosphorus as well as a lack of response when only nitrogen was added indicates phosphorus limitation. Maximum growth potential was achieved with the simultaneous addition of both phosphorus and nitrogen.

The N/P ratio in the field samples was greater than 14/1 on all sampling occasions, suggesting primary limitation by phosphorus at the times of sample collection. The nutrient values ratioed represent the means of site means.

IV. NUTRIENT LOADINGS
(See Appendix D for data)

For the determination on nutrient loadings, the Alabama National Guard collected monthly near-surface grab samples from each of the tributary sites indicated (see map, page v), except for the high runoff months of January and February when two samples were collected. Sampling was begun in March 1973, and was completed in February 1974.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the Alabama District Office of the USGS for the tributary sites nearest the lake.

In this report, nutrient loads for sampled tributaries, except Browns, Short, and Roseberry Creeks, were determined by using a modification of USGS computer program for calculating stream loadings. Nutrient loads indicated for tributaries are those measured minus known point source loads, if any. Nutrient loads for Station U(1) were calculated using the mean annual flow and nutrient concentrations in the Tennessee River at that site.

Nutrient loadings for Browns, Short, and Roseberry Creeks, at Stations A(1), C(1), and T(1), and for unsampled "minor tributaries and immediate drainage" ("ZZ" of USGS) were estimated using the mean of the nutrient loads, in $kg/km^2/yr$, at

Stations D(1), E(1), G(1), H(1), J(1) K(1), M(1), P(1), and R(1), and multiplying the means by the appropriate tributary or ZZ drainage area in km^2.

The operators of the Browns Creek, Scottsboro #1, #2, East Lake, Guntersville, and Stevenson Lagoon wastewater treatment plants provided monthly effluent samples and corresponding flow data. Nutrient loads for the cities of Bridgeport and Albertville wastewater treatment plants were estimated at 1.134 kg P and 3.401 kg N/capita/year.

A. Waste Sources:

1. Known municipal -

Name	Population Served	Treatment	Mean Flow ($m^3/d \times 10^3$)	Receiving Water
Bridgeport	2,260	4	0.855*	Tennessee River
Browns Creek (Guntersville)	3,300	1	7.820	Browns Creek
Scottsboro #1	8,800	2	8.880	Roseberry Creek
Scottsboro #2	800	2	0.106	Roseberry Creek
Guntersville	700	3	2.340	Polecat Branch/ Tennessee River
Albertville (2 plants)	9,963	3	3.771*	East Fork Drum Creek/Short Creek (West plant) Turkey Creek (East plant)
Stevenson Lagoon	432	4	0.293	Bengis Creek/Crow Creek Inlet

2. Other -

Name	Product	Treatment	Mean Flow ($m^3/d \times 10^3$)	Receiving Water
East Lake (Guntersville)	Poultry Processing Plant	2	0.246	Polecat Branch/ Tennessee River

Key:

1. Primary clarification
2. Activated sludge
3. Trickling filter
4. Stabilization pond

*Estimated at 0.3785 m^3/capita/day.

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

Source	kg P/yr	% of total
a. Tributaries (nonpoint load) -		
A(1) Browns Creek	1,905	0.1
B(1) Big Spring Creek	3,395	0.2
C(1) Short Creek	10,155	0.6
D(1) Scarham Creek	7,230	0.4
E(1) Shoal Creek	2,270	0.1
F(1) Town Creek	63,530	3.4
G(1) Blackoak Creek	1,820	0.1
H(1) South Sauty Creek	9,455	0.5
J(1) Bryant Creek	3,685	0.2
K(1) Flat Rock Creek	3,660	0.2
L(1) Dry Creek (Coon Creek)	480	<0.1
M(1) Little Bryant Creek	610	<0.1
N(1) Long Island Creek	7,615	0.4
P(1) Widows Creek	4,505	0.2
Q(1) Crow Creek	16,810	0.9
R(1) Coon Creek	5,615	0.3
S(1) Mud Creek	10,215	0.6
T(1) Roseberry Creek	2,795	0.2
U(2) Tennessee River	1,540,730	83.4
V(1) Sequatchie River	46,435	2.5
W(1) Battle Creek	8,565	0.5
b. Minor tributaries and immediate drainage (nonpoint load) -	37,935	2.1
c. Known municipal STP's -		
Bridgeport	2,565	0.1
Browns Creek (Guntersville)	12,475	0.7
Scottsboro #1	18,970	1.0
Scottsboro #2	190	<0.1
Guntersville	6,225	0.3
Albertville (#1 and #2)	11,300	0.6
Stevenson Lagoon	1,390	0.1
d. Septic tanks* -	75	<0.1
e. Known industrial -		
East Lake (Guntersville)	660	<0.1
f. Direct precipitation** -	4,810	0.3
Total	1,848,075	100.0
2. Output - U(1) Tennessee River	1,709,205	
3. Net annual P accumulation -	138,870	

*Estimate based on 27 camps and parks.
**Estimated (see NES Working Paper No. 175).

C. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

Source	kg N/yr	% of total
a. Tributaries (nonpoint load) -		
A(1) Browns Creek	65,935	0.2
B(1) Big Spring Creek	188,800	0.5
C(1) Short Creek	351,600	1.0
D(1) Scarham Creek	228,645	0.7
E(1) Shoal Creek	118,240	0.3
F(1) Town Creek	1,396,405	4.0
G(1) Blackoak Creek	93,880	0.3
H(1) South Sauty Creek	513,715	1.5
J(1) Bryant Creek	96,880	0.3
K(1) Flat Rock Creek	88,885	0.2
L(1) Dry Creek (Coon Creek)	15,210	<0.1
M(1) Little Bryant Creek	23,315	0.1
N(1) Long Island Creek	157,390	0.4
P(1) Widows Creek	116,115	0.3
Q(1) Crow Creek	282,945	0.8
R(1) Coon Creek	129,140	0.4
S(1) Mud Creek	200,750	0.6
T(1) Roseberry Creek	96,720	0.3
U(2) Tennessee River	28,211,455	79.9
V(1) Sequatchie River	932,615	2.6
W(1) Battle Creek	210,705	0.6
b. Minor tributaries and immediate drainage (nonpoint load) -	1,313,565	3.7
c. Known municipal STP's -		
Bridgeport	7,685	<0.1
Browns Creek (Guntersville)	28,145	0.1
Scottsboro #1	59,985	0.2
Scottsboro #2	560	<0.1
Guntersville	20,175	0.1
Albertville (#1 and #2)	33,885	0.1
Stevenson Lagoon	1,885	<0.1
d. Septic tanks* -	2,880	<0.1
e. Known industrial -		
East Lake (Guntersville)	2,210	<0.1
f. Direct precipitation** -	296,880	0.8
Total	35,287,200	100.0

2. Output - U(1) Tennessee River 33,965,895

3. Net annual N accumulation - 1,321,305

*Estimate based on 27 camps and parks.
**Estimated (see NES Working Paper No. 175).

D. Mean Annual Nonpoint Nutrient Export by Subdrainage Area:

Tributary	kg P/km^2/yr	kg N/km^2/yr
A(1) Browns Creek	35	1,212
B(1) Big Spring Creek	28	1,588
C(1) Short Creek	35	1,212
D(1) Scarham Creek	48	1,504
E(1) Shoal Creek	29	1,487
F(1) Town Creek*	112*	2,462*
G(1) Blackoak Creek	33	1,726
H(1) South Sauty Creek	22	1,181
J(1) Bryant Creek	29	763
K(1) Flat Rock Creek	50	1,213
L(1) Dry Creek (Coon Creek)	20	618
M(1) Little Bryant Creek	36	1,388
N(1) Long Island Creek	34	711
P(1) Widows Creek	40	1,030
Q(1) Crow Creek	24	397
R(1) Coon Creek	27	612
S(1) Mud Creek	53	1,049
T(1) Roseberry Creek	35	1,212
U(2) Tennessee River	27	500
V(1) Sequatchie River	30	595
W(1) Battle Creek	19	478

*Background levels for this tributary probably inflated by unknown point sources.

E. Yearly Loadings:

In the following table, the existing phosphorus annual loading is compared to the relationship proposed by Vollenweider (1975). Essentially, his eutrophic loading is that at which the receiving waters would become eutrophic or remain eutrophic; his oligotrophic loading is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A mesotrophic loading would be considered one between eutrophic and oligotrophic.

Note that Vollenweider's model may not apply to lakes with short hydraulic retention time or in which light penetration is severely restricted by high concentrations of suspended solids in the surface waters.

	Total Yearly Phosphorus Loading ($g/m^2/yr$)
Estimated loading for Guntersville Reservoir	6.72
Vollenweider's eutrophic loading	2.10
Vollenweider's oligotrophic loading	1.05

V. LITERATURE REVIEWED

U.S. Environmental Protection Agency. 1975. National Eutrophication Survey Methods for Lakes Sampled in 1973, 1974, 1975. Working Paper No. 175. National Environmental Research Center, Las Vegas, Nevada, and Pacific Northwest Environmental Research Laboratory, Corvallis, Oregon.

U.S. EPA. (in press). Report on Ft. Loudon Reservoir, Watts Bar Reservoir, Chichamauga Reservoir, and Nickajack Reservoir, Working Paper No. 446. National Environmental Research Center, Las Vegas, Nevada, and Pacific Northwest Environmental Research Laboratory, Corvallis, Oregon.

Vollenweider, R. A., 1975. Input-Output Models With Final Reference to the Phosphorus Loading Concept in Limnology. Schweiz. Z. Hydrol. 37: 53-84.

VI. APPENDICES

APPENDIX A

CONVERSION FACTORS

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x 8.107×10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

APPENDIX B

TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0104 GUNTERSVILLE RESERVOIR

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 63325.5

TRIBUTARY	SUB-DRAINAGE AREA(SQ KM)	NORMALIZED FLOWS(CMS) JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
0104A1	54.4	2.69	3.54	3.14	2.27	1.22	0.54	0.57	0.28	0.31	0.14	0.79	1.70	1.42
0104B1	118.9	5.95	7.79	6.94	4.96	2.72	1.25	1.30	0.68	0.74	0.34	1.76	3.68	3.15
0104C1	290.1	11.04	13.03	16.85	11.19	5.66	3.82	5.66	1.67	1.36	2.49	6.09	8.92	7.29
0104D1	152.0	5.10	5.95	7.79	4.87	2.18	1.47	2.27	0.59	0.45	0.91	2.38	3.74	3.13
0104E1	79.5	2.55	3.06	4.02	2.55	1.10	0.71	1.16	0.25	0.20	0.42	1.25	1.98	1.60
0104F1	388.5	12.18	14.72	19.26	12.03	5.44	3.57	5.66	1.36	1.08	2.15	5.95	9.34	7.69
0104G1	54.4	1.67	2.04	2.72	1.70	0.74	0.48	0.79	0.15	0.11	0.27	0.82	1.30	1.06
0104H1	310.8	10.19	12.03	16.28	10.19	4.53	2.66	4.67	0.74	0.54	1.39	4.96	7.65	6.29
0104J1	126.9	4.11	4.96	6.65	4.16	1.47	0.85	1.56	0.23	0.17	0.45	1.70	3.11	2.44
0104K1	73.3	2.41	2.89	3.82	2.44	1.08	0.71	1.10	0.25	0.16	0.42	1.19	1.84	1.52
0104L1	24.6	0.793	0.991	1.274	0.793	0.396	0.238	0.368	0.088	0.065	0.142	0.396	0.623	0.512
0104M1	16.8	0.538	0.651	0.878	0.538	0.244	0.159	0.252	0.048	0.037	0.088	0.266	0.425	0.342
0104N1	221.4	7.50	8.72	11.61	7.22	3.26	2.12	3.34	0.79	0.62	1.27	3.54	5.52	4.61
0104P1	96.3	4.59	6.09	5.38	3.82	2.15	0.96	1.02	0.51	0.57	0.27	1.36	2.89	2.45
0104Q1	406.6	16.99	22.65	19.96	13.88	7.50	3.28	3.48	1.73	1.87	0.85	4.67	10.34	8.85
0104R1	211.1	9.29	12.46	10.90	7.50	3.62	1.39	1.47	0.62	0.71	0.28	2.10	5.30	4.59
0104S1	191.4	8.21	10.90	9.63	6.65	3.48	1.47	1.56	0.74	0.76	0.34	2.12	4.90	4.19
0104T1	79.8	3.40	4.59	4.02	2.78	1.44	0.62	0.65	0.31	0.34	0.15	0.88	2.04	1.75
0104U1	63325.5	1805.48	1823.52	1585.18	908.23	872.27	843.16	870.49	860.55	795.11	822.35	986.39	1368.33	1125.39
0104U2	56643.3	1251.60	1294.09	1390.36	730.57	722.08	747.56	821.19	886.32	758.89	838.18	988.26	1067.55	956.95
0104V1	1566.9	54.65	67.68	70.79	50.40	27.41	14.61	12.06	9.29	6.82	5.75	17.98	36.81	30.98
0104W1	440.3	15.32	19.03	19.88	14.13	7.70	4.11	3.40	2.61	1.93	1.61	5.04	10.36	8.70
0104ZZ	1776.7	67.25	86.08	91.46	60.03	29.02	15.23	23.62	6.57	6.14	6.71	24.15	45.02	38.18

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 63325.5
SUM OF SUB-DRAINAGE AREAS = 63324.2

TOTAL FLOW IN = 13196.58
TOTAL FLOW OUT = 13541.04

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0104A1	3	73	7.787	4	1.869				
	4	73	2.435	6	1.529				
	5	73	1.841	16	0.453				
	6	73	0.650	6	0.566				
	7	73	0.595	16	0.538				
	8	73	0.176	4	0.263				
	9	73	0.108	7	0.068				
	10	73	0.071	13	0.088				
	11	73	1.246	17	0.088				
	12	73	3.681	11	0.566				
	1	74	6.230	9	4.389	23	1.727		
	2	74	4.389	9	2.832	22	9.486		

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0104 GUNTERSVILLE RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0104B1	3	73	16.424	4	4.021				
	4	73	5.380	6	3.370				
	5	73	4.021	7	1.699				
	6	73	1.954	6	1.331				
	7	73	1.359	16	1.246				
	8	73	0.425	4	0.623				
	9	73	0.272	7	0.164				
	10	73	0.170	13	0.227				
	11	73	2.662	17	0.215				
	12	73	7.929	11	1.246				
	1	74	13.592	9	9.628	23	3.823		
	2	74	9.628	9	6.230	23	11.327		
0104C1	1	73	23.786	12	31.149	15	25.485		
	2	73	25.768	9	19.539	22	56.634		
	3	73	24.352	4	11.468				
	4	73	12.743	2	16.990				
	5	73	14.017	4	7.221				
	6	73	8.070	10	5.522				
	7	73	3.540	14	2.237				
	8	73	0.963	4	0.680				
	9	73	0.071	18	0.042				
	10	73	0.102	13	0.057				
	11	73	2.379	17	0.269				
	12	73	11.893	8	7.504				
0104D1	3	73	12.176	4	5.040				
	4	73	5.720	2	7.929				
	5	73	6.343	4	2.917				
	6	73	3.313	10	2.152				
	7	73	1.331	14	0.793				
	8	73	0.311	5	0.178				
	9	73	0.020	18	0.023				
	10	73	0.028	13	0.014				
	11	73	0.878	17	0.079				
	12	73	5.239	8	3.115				
	1	74	11.893	12	15.291	15	13.026		
	2	74	13.389	9	9.345	22	31.149		
0104E1	3	73	6.938	4	2.662				
	4	73	3.058	2	4.191				
	5	73	3.341	4	1.529				
	6	73	1.671	10	1.104				
	7	73	0.623	14	0.368				
	8	73	0.130	5	0.068				
	9	73	0.006	18	0.006				
	10	73	0.008	13	0.006				
	11	73	0.396	17	0.028				
	12	73	2.775	8	1.586				
	1	74	6.371	12	10.902	15	6.796		
	2	74	6.934	9	4.955	22	16.424		

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0104 GUNTERSVILLE RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0104F1	3	73	30.582	4	12.459				
	4	73	14.300	2	19.822				
	5	73	15.574	4	7.362				
	6	73	8.297	10	5.380				
	7	73	3.256	14	1.897				
	8	73	0.708	5	0.396				
	9	73	0.037	18	0.042				
	10	73	0.054	13	0.034				
	11	73	2.039	17	0.164				
	12	73	13.167	8	7.787				
	1	74	31.149	12	37.945	15	31.856		
	2	74	33.697	9	22.937	22	76.455		
0104G1	3	73	5.635	4	1.756				
	4	73	1.982	2	2.775				
	5	73	2.180	4	1.019				
	6	73	1.133	10	0.736				
	7	73	0.453	14	0.229				
	8	73	0.065	5	0.031				
	9	73	0.003	18	0.006				
	10	73	0.003	13	0.001				
	11	73	0.255	17	0.011				
	12	73	1.841	12	0.595				
	1	74	4.106	12	5.380	15	4.389		
	2	74	4.616	9	3.200	22	10.760		
0104H1	3	73	25.485	4	10.421				
	4	73	11.751	2	16.565				
	5	73	13.649	4	6.088				
	6	73	6.796	10	4.531				
	7	73	2.322	14	1.161				
	8	73	0.311	5	0.139				
	9	73	0.006	18	0.008				
	10	73	0.011	13	0.0				
	11	73	1.274	17	0.045				
	12	73	10.902	8	3.681				
	1	74	24.636	12	31.715	15	27.184		
	2	74	27.467	9	19.255	22	65.129		
0104J1	3	73	10.619	3	5.663				
	4	73	4.672	8	8.920				
	5	73	5.267	5	1.756				
	6	73	2.775	2	2.718				
	7	73	0.736	14	0.368	16	0.595		
	8	73	0.099	4	0.057				
	9	73	0.003	16	0.003				
	10	73	0.003	6	0.003				
	11	73	0.425	3	0.0				
	12	73	4.389	8	2.407				
	1	74	9.911	5	9.203	19	4.955		
	2	74	11.327	2	11.044	16	39.644		

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0104 GUNTERSVILLE RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0104K1	3	73	6.088	3	3.256				
	4	73	2.832	8	5.239				
	5	73	3.171	5	1.218				
	6	73	1.642	2	1.642				
	7	73	0.623	14	0.368				
	8	73	0.085	4	0.042				
	9	73	0.0	16	0.0				
	10	73	0.0	6	0.001				
	11	73	0.396	3	0.0				
	12	73	2.605	8	1.529				
	1	74	5.805	5	5.380	19	2.832		
	2	74	6.513	2	6.513	16	22.937		
0104L1	3	73	1.982	3	1.104				
	4	73	0.963	8	1.756				
	5	73	1.019	5	0.396				
	6	73	0.538	2	0.538				
	7	73	0.212	14	0.122				
	8	73	0.040	4	0.025				
	9	73	0.0	16	0.001				
	10	73	0.003	6	0.001				
	11	73	0.133	3	0.000				
	12	73	0.850	8	0.510				
	1	74	1.926	5	1.784	19	0.963		
	2	74	2.152	2	2.124	16	7.079		
0104M1	3	73	1.359	3	0.736				
	4	73	0.651	8	1.189				
	5	73	0.708	5	0.272				
	6	73	0.368	2	0.368				
	7	73	0.144	14	0.074				
	8	73	0.023	4	0.014				
	9	73	0.0	16	0.001				
	10	73	0.0	6	0.001				
	11	73	0.082	3	0.0				
	12	73	0.595	8	0.348				
	1	74	1.331	5	1.246	19	0.651		
	2	74	1.501	2	1.472	16	5.097		
0104N1	3	73	17.415	3	9.911				
	4	73	8.410	7	16.990				
	5	73	9.345	5	3.653				
	6	73	4.786	2	4.899				
	7	73	1.897	14	1.104				
	8	73	0.425	4	0.275				
	9	73	0.020	15	0.028				
	10	73	0.034	6	0.091				
	11	73	1.189	3	0.008				
	12	73	7.646	8	4.616				
	1	74	17.273	5	16.282	19	8.495		
	2	74	19.255	2	19.822	16	67.960		

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0104 GUNTERSVILLE RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0104P1	3	73	13.054	3	3.738				
	4	73	4.219	7	3.341				
	5	73	3.228	5	1.642				
	6	73	1.246	2	1.727				
	7	73	0.850	14	0.878				
	8	73	0.340	4	0.481				
	9	73	0.204	12	0.111	15	1.048		
	10	73	0.133	6	0.340				
	11	73	2.180	3	0.311				
	12	73	6.230	12	0.906				
	1	74	10.194	5	5.380	19	3.115		
	2	74	7.646	2	9.203	16	19.822		
0104Q1	3	73	55.218	3	13.592				
	4	73	15.008	7	11.950				
	5	73	13.734	5	5.692				
	6	73	5.267	2	6.088				
	7	73	3.625	14	2.945				
	8	73	1.076	4	1.586				
	9	73	0.651	12	0.340	15	3.568		
	10	73	0.425	6	1.019				
	11	73	7.362	3	1.019				
	12	73	23.220	8	4.248				
	1	74	41.059	5	20.105	19	12.601		
	2	74	29.733	2	35.962	16	75.040		
0104R1	3	73	28.175	3	7.306				
	4	73	8.269	7	6.286				
	5	73	6.258	5	2.633				
	6	73	2.407	2	2.803				
	7	73	1.529	14	1.218				
	8	73	0.368	4	0.595				
	9	73	0.204	15	1.529				
	10	73	0.122	6	0.147				
	11	73	3.540	3	0.340				
	12	73	12.743	8	1.869				
	1	74	22.370	5	11.044	19	6.796		
	2	74	15.857	2	18.831	16	43.891		
0104S1	3	73	24.692	3	6.456				
	4	73	7.277	7	5.663				
	5	73	5.409	5	2.577				
	6	73	2.379	2	2.747				
	7	73	1.642	14	1.388				
	8	73	0.396	4	0.680				
	9	73	0.218	15	1.586				
	10	73	0.122	6	0.193				
	11	73	3.398	3	0.368				
	12	73	12.459	8	1.812				
	1	74	20.671	5	9.769	19	6.003		
	2	74	15.291	2	17.273	16	38.936		

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0104 GUNTERSVILLE RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0104T1	3	73	10.421	4	2.265				
	4	73	3.030	8	5.069				
	5	73	2.265	19	0.453				
	6	73	0.991	9	0.566				
	7	73	0.680	22	0.453				
	8	73	0.187	11	0.133				
	9	73	0.188	14	0.190				
	10	73	0.068	14	0.071				
	11	73	1.416	11	0.888				
	12	73	4.672	16	0.651				
	1	74	8.353	6	3.823	18	3.256		
	2	74	5.805	3	9.769	19	5.324		
0104U1	3	73	2995.922	4	1025.070				
	4	73	1305.486	6	1367.784				
	5	73	1939.704	7	1430.881				
	6	73	1868.912	6	2517.368				
	7	73	1112.852	14	529.525				
	8	73	1155.327	4	872.159				
	9	73	877.822	7	863.664				
	10	73	804.198	13	523.862				
	11	73	1180.812	17	985.426				
	12	73	2324.813	11	1662.199				
	1	74	4219.207	9	4474.859	23	3276.259		
	2	74	3341.388	3	3681.198	22	3114.853		
0104U2	3	73	2290.833	3	886.317				
	4	73	1033.565	7	993.921				
	5	73	1682.021	5	1313.982				
	6	73	1611.229	2	2860.001				
	7	73	1047.723	15	920.297				
	8	73	1132.674	4	1183.644				
	9	73	874.998	15	843.842				
	10	73	784.376	6	974.099				
	11	73	1135.505	4	812.693				
	12	73	1968.021	9	1755.645				
	1	74	3624.556	6	3811.448	20	3177.150		
	2	74	2718.417	3	2862.833	16	2678.279		
0104V1	3	73	149.513	3	38.228				
	4	73	62.863	7	42.475				
	5	73	67.677	5	40.493				
	6	73	42.843	2	70.226				
	7	73	20.218	15	14.611				
	8	73	9.373	11	10.562				
	9	73	5.578	15	8.184				
	10	73	5.748	6	6.570				
	11	73	67.394	4	8.099				
	12	73	99.109	9	36.246				
	1	74	156.309	6	84.384	20	53.236		
	2	74	96.844	3	164.521	16	146.681		

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0104 GUNTERSVILLE RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0104W1	3	73	26.986	3	6.003				
	4	73	23.333	7	11.950				
	5	73	19.029	17	5.493				
	6	73	10.024	2	19.737				
	7	73	5.692	15	2.888				
	8	73	1.784	4	3.426				
	9	73	1.557	15	2.322				
	10	73	1.614	6	2.265				
	11	73	18.972	4	10.166				
	12	73	27.864	9	10.166				
	1	74	43.891	6	23.730	20	14.980		
	2	74	27.241	3	46.156	16	41.343		
0104ZZ	3	73	187.458	3	69.943	4	55.501		
	4	73	67.960	7	95.003	8	119.639		
	5	73	63.147	5	26.533				
	6	73	30.894	2	32.678	10	18.689		
	7	73	15.093	14	10.477				
	8	73	3.681	4	4.219				
	9	73	1.303	15	7.419	16	3.341		
	10	73	0.878	6	1.274	13	0.850		
	11	73	20.530	3	1.982	17	1.331		
	12	73	83.818	8	27.439	11	17.840	12	16.565
	1	74	163.955	5	116.099	19	62.722		
	2	74	143.009	2	158.574	16	455.901	22	327.060

APPENDIX C

PHYSICAL AND CHEMICAL DATA

STORET RETRIEVAL DATE 76/07/22

010401
34 25 24.0 086 22 59.0 3
GUNTERSVILLE RESERVOIR
01095 ALABAMA
040891

11EPALES 2111202
0062 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/08	13	30 0000	24.3		24	135	7.20	47	0.080	0.400	0.400	0.013
	13	30 0005	23.8	8.2		130	7.20	46	0.090	0.300	0.400	0.011
	13	30 0015	23.2	8.2		130	7.10	47	0.100	0.300	0.410	0.019
	13	30 0040	23.2	8.2		130	7.10	47	0.090	0.300	0.410	0.012
	13	30 0060	23.1	8.0		130	7.10	47	0.090	0.300	0.410	0.014
73/08/16	15	10 0000	29.7	8.0	52	176	7.20	53	0.070	0.400	0.270	0.006
	15	10 0005	29.6			174						
	15	10 0015	28.5	6.8		171	7.10	53	0.080	0.200	0.310	0.008
	15	10 0025	28.3			170						
	15	10 0035	28.3	6.0		170	7.00	53	0.090	0.300	0.320	0.014
	15	10 0040	28.3			171						
	15	10 0055	28.3	6.0		171	7.00	55	0.120	0.300	0.330	0.012
73/10/22	14	05 0000	22.3		42	186	7.70					
	14	05 0005	22.3	7.4		183	7.70	66	0.050	0.200K	0.350	0.026
	14	05 0015	21.9	7.4		182	7.60	65	0.050	0.200K	0.350	0.025
	14	05 0035	21.9	7.2		183	7.60	52	0.060	0.200K	0.360	0.020
	14	05 0056	21.8	7.4		184	7.60	53	0.050	0.200K	0.360	0.022

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/08	13	30 0000	0.048	4.5
	13	30 0005	0.044	
	13	30 0015	0.044	
	13	30 0040	0.049	
	13	30 0060	0.048	
73/08/16	15	10 0000	0.030	9.2
	15	10 0015	0.029	
	15	10 0035	0.036	
	15	10 0055	0.044	
73/10/22	14	05 0000		7.2
	14	05 0005	0.053	
	14	05 0015	0.044	
	14	05 0035	0.043	
	14	05 0056	0.050	

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

010402
34 22 30.0 086 17 27.0 3
GUNTERSVILLE RESERVOIR
01095 ALABAMA
040891

11EPALES 2111202
0058 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/08	14 10	0000	24.1		24	130	7.20	48	0.090	0.300	0.430	0.016
	14 10	0005	24.0	8.4		130	7.20	48	0.090	0.300	0.440	0.015
	14 10	0015	23.3	8.4		130	7.20	48	0.110	0.300	0.450	0.015
	14 10	0035	23.1	8.0		130	7.30	49	0.130	0.400	0.510	0.017
	14 10	0055	23.1	8.0		130	7.30	51	0.140	0.300	0.500	0.015

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/08	14 10	0000	0.047	4.4
	14 10	0005	0.041	
	14 10	0015	0.050	
	14 10	0035	0.045	
	14 10	0055	0.051	

STORET RETRIEVAL DATE 76/07/22

010403
34 21 23.0 086 19 55.0 3
GUNTERSVILLE RESERVOIR
01095 ALABAMA

040892

11EPALES 2111202
0028 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/08	14 50	0000	27.7	9.2	60	130	8.60	52	0.090	0.600	0.100	0.005
	14 50	0005	27.6	9.2		120	8.10	52	0.040	0.600	0.050	0.005
	14 50	0010	25.4	5.6		130	7.70	55	0.080	0.200K	0.120	0.007
	14 50	0015	23.4	3.1		130	7.50	54	0.090	0.200	0.220	0.007
	14 50	0025	22.2	1.8		140	7.30	51	0.140	0.500	0.350	0.011
73/08/16	15 50	0000	28.5	4.6	52	160	8.10	55	0.060	0.400	0.110	0.007
	15 50	0010	28.3			164						
	15 50	0015	28.3	4.6		163	7.30	57	0.140	0.400	0.100	0.006
	15 50	0025	28.1	2.8		166	7.00	57	0.190	0.600	0.130	0.007
73/10/22	14 30	0000	21.9		42	166	8.60	57	0.070	0.600	0.070	0.008
	14 30	0005	21.5	8.6		160	8.30	54	0.040	0.400	0.080	0.023
	14 30	0020	21.1	7.8		156	7.90	53	0.050	0.300	0.100	0.019

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/08	14 50	0000	0.032	15.9
	14 50	0005	0.039	
	14 50	0010	0.036	
	14 50	0015	0.034	
	14 50	0025	0.044	
73/08/16	15 50	0000	0.026	9.0
	15 50	0015	0.027	
	15 50	0025	0.036	
73/10/22	14 30	0000	0.034	20.3
	14 30	0005	0.047	
	14 30	0020	0.050	

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

010404
34 28 40.0 086 12 02.0 3
GUNTERSVILLE RESERVOIR
01095 ALABAMA
040891

11EPALES 2111202
0046 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/08	15 30	0000	25.4	9.2	24	135	7.20	43	0.070	0.700	0.440	0.013
	15 30	0005	24.3	9.2		135	7.20	47	0.060	0.500	0.430	0.014
	15 30	0015	22.6	8.6		140	7.30	48	0.070	0.500	0.450	0.016
	15 30	0025	22.5	8.4		140	7.20	49	0.070	0.500	0.440	0.016
	15 30	0043	22.5	8.6		140	7.40	51	0.060	0.500	0.450	0.014
73/08/16	16 30	0000	30.7	10.0	48	173	8.00	55	0.070	0.400	0.190	0.005
	16 30	0005	28.8	9.2		171	7.90	51	0.060	0.400	0.280	0.008
	16 30	0010	28.0			170						
	16 30	0015	27.7	4.0		170	7.50	53	0.090	0.200	0.370	0.012

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/08	15 30	0000	0.048	5.1
	15 30	0005	0.044	
	15 30	0015	0.043	
	15 30	0025	0.040	
	15 30	0043	0.049	
73/08/16	16 30	0000	0.052	16.4
	16 30	0005	0.034	
	16 30	0015	0.029	

STORET RETRIEVAL DATE 76/07/22

010405
34 34 08.0 086 03 45.0 3
GUNTERSVILLE RESERVOIR
01071 ALABAMA

040891

11EPALES 2111202
0031 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/09	11 30	0000	23.7		20	145	7.50	54	0.070	0.400	0.450	0.019
	11 30	0005	23.2	8.4		145	7.50	55	0.050	0.300	0.450	0.018
	11 30	0015	22.8	8.7		145	7.50	55	0.060	0.300	0.460	0.019
	11 30	0030	22.7	8.6		145	7.50	56	0.600	0.300	0.480	0.020
73/10/22	14 50	0000	23.1		60	190	7.60	56	0.080	0.200	0.440	0.031
	14 50	0005	22.9	7.0		188	7.50	56	0.060	0.200K	0.430	0.030
	14 50	0015	22.8	7.0		186	7.50	56	0.060	0.200K	0.430	0.030
	14 50	0030	22.5	6.6		186	7.50	57	0.060	0.200K	0.420	0.033

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/09	11 30	0000	0.058	2.8
	11 30	0005	0.057	
	11 30	0015	0.056	
	11 30	0030	0.079	
73/10/22	14 50	0000	0.047	1.7
	14 50	0005	0.041	
	14 50	0015	0.041	
	14 50	0030	0.039	

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

010406
34 31 06.0 086 06 10.0 3
GUNTERSVILLE RESERVOIR
01095 ALABAMA

040891

11EPALES 2111202
0018 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/09	14	15 0000	26.8		30	75	7.90	16	0.060	0.700	0.720	0.010
	14	15 0005	25.0	7.6		75	7.60	18	0.080	0.500	0.730	0.007
	14	15 0015	20.9	3.1		95	7.30	21	0.260	0.400	0.760	0.022
73/08/18	12	40 0000	28.5		36	120	8.40	36	0.130	1.400	0.100	0.010
	12	40 0005	28.2	6.0		129	8.00	39	0.120	0.700	0.120	0.007
	12	40 0011	28.1	5.8		133	7.70	58	0.090	1.000	0.210	0.012

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/09	14	15 0000	0.065	4.2
	14	15 0005	0.058	
	14	15 0015	0.090	
73/08/18	12	40 0000	0.049	22.8
	12	40 0005	0.037	
	12	40 0011	0.043	

STORET RETRIEVAL DATE 76/07/22

010407
34 35 27.0 086 05 30.0 3
GUNTERSVILLE RESERVOIR
01071 ALABAMA

040891

11EPALES 2111202
0017 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/09	14 40	0000	25.5	8.5	35	150	8.20	58	0.040	0.600	0.190	0.007
	14 40	0005	23.1	7.2		140	7.80	49	0.040	0.200	0.330	0.005
	14 40	0015	22.4	6.0		140	7.50	47	0.100	0.200	0.380	0.008
73/08/18	13 05	0000	27.7		36	166	7.80	58	0.090	1.000	0.210	0.012
	13 05	0005	27.5	5.4		167	7.70	61	0.110	0.800	0.220	0.013
	13 05	0010	27.5	5.5		167	7.50	60	0.110	0.600	0.240	0.008
73/10/22	15 10	0000	21.5		36	178	8.80	59	0.040	0.500	0.120	0.015
	15 10	0008	20.4	8.2		175	8.40	61	0.030	0.500	0.100	0.011

DATE FROM TO	TIME OF DAY	DEPTH FEET	90665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/09	14 40	0000	0.054	6.2
	14 40	0005	J.049	
	14 40	0015	0.048	
73/08/18	13 05	0000	0.043	17.5
	13 05	0005	0.039	
	13 05	0010	0.038	
73/10/22	15 10	0000	0.038	2.7
	15 10	0008	0.054	

STORET RETRIEVAL DATE 76/07/22

010408
34 38 23.0 085 58 36.0 3
GUNTERSVILLE RESERVOIR
01071 ALABAMA

040891

11EPALES 2111202
0028 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/09	10 50	0000	22.7		28	145	7.50	53	0.060	0.400	0.460	0.021
	10 50	0005	22.6	8.6		140	7.50	53	0.060	0.300	0.470	0.020
	10 50	0015	22.6	8.5		140	7.50	53	0.060	0.200	0.470	0.014
	10 50	0025	22.6	8.7		140	7.40	54	0.060	0.200	0.460	0.020
73/08/18	13 30	0000	27.3		51	161	7.40	54	0.110	0.700	0.440	0.022
	13 30	0005	27.1	5.6		163	7.30	53	0.100	0.500	0.440	0.021
	13 30	0015	27.1	5.4		162	7.30	53	0.100	0.500	0.440	0.019
	13 30	0025	27.1	5.4		161	7.20	55	0.090	0.200	0.430	0.019

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/09	10 50	0000	0.064	1.9
	10 50	0005	0.062	
	10 50	0015	0.064	
	10 50	0025	0.059	
73/08/18	13 30	0000	0.036	3.2
	13 30	0005	0.032	
	13 30	0015	0.033	
	13 30	0025	0.029	

APPENDIX D

TRIBUTARY AND WASTEWATER TREATMENT PLANT DATA

STORET RETRIEVAL DATE 76/07/22

0104A1 LS0104A1
34 17 00.0 086 23 30.0 4
BROWNS CREEK
01 7.5 ARAB
T/GUNTERSVILLE RESVR 040892
BRDG CO RT 43 3.3 MI NE OF RED HILL
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	11 40		0.670	3.000	0.075	0.006	0.045
73/04/06	14 50		0.760	0.880	0.025	0.009	0.035
73/05/16	15 30		0.660	0.350	0.046	0.014	0.040
73/06/06	10 20		0.540	0.610	0.039	0.017	0.120
73/07/16	16 30		0.610	0.890	0.044	0.044	0.210
73/08/04	12 15		0.730	0.310	0.025	0.023	0.080
73/09/07	15 40		0.560	0.670	0.035	0.013	0.040
73/10/13	14 14		0.910	0.910	0.063	0.015	0.045
73/11/17	14 20		0.370	0.550	0.011	0.022	0.065
73/12/11	11 55		0.610	0.300	0.012	0.008	0.020
74/01/09	10 10		0.880	1.000	0.036	0.032	0.090
74/01/23	12 05		0.960	0.400	0.016	0.012	0.065
74/02/09	10 05		0.850	0.100	0.005K	0.015	0.040
74/02/22	10 15		0.080	0.900	0.015	0.015	0.110

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

01040B1 L50104B1
34 17 30.0 086 21 30.0 4
BIG SPRING CREEK
01 7.5 GUNTERSVILLE
T/GUNTERSVILLE RESVR 040892
BRDG ON RD LEADING TO SMITHCEMETERY
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	11 55		1.340	2.600	0.069	0.007	0.035
73/04/06	15 10		1.100	2.700	0.075	0.005K	0.020
73/05/07	15 35		1.100	0.290	0.040	0.021	0.025
73/06/06	11 45		0.760	2.310	0.039	0.009	0.055
73/07/16	17 00		0.630	0.330	0.032	0.014	0.055
73/08/04	12 30		0.510	0.160	0.023	0.012	0.025
73/09/07	16 10		0.400	0.840	0.052	0.007	0.030
73/10/13	14 35		0.350	0.250	0.016	0.005K	0.020
73/11/17	15 50		0.147	0.200	0.020	0.009	0.035
73/12/11	11 15		0.504	0.500	0.016	0.005K	0.015
74/01/04	10 45		1.920	0.400	0.024	0.020	0.050
74/01/23	12 17		1.900	0.300	0.020	0.008	0.045
74/02/04	09 20		1.760	0.200	0.010	0.010	0.015
74/02/22	09 55		0.890	0.800	0.060	0.045	

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104C1 LS0104C1
34 19 00.0 086 12 30.0 4
SHORT CREEK
01 7.5 ALBERTVILLE
T/GUNTERSVILLE RESVR 040892
HWY BRDG JUST UPSTREAM SHORT CREEK FALLS
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	15 15		1.580	1.400	0.120	0.060	0.135
73/04/02	11 40		1.460	2.000	0.180	0.022	0.065
73/05/04	17 45		1.420	2.360	0.176	0.089	0.135
73/06/10	10 50		0.950	3.000	0.520	0.071	0.175
73/07/14	11 35		2.250	0.770	0.165	0.600	0.677
73/08/04	15 00		2.500	0.760	0.052	0.990	1.050
73/09/18	11 45		1.890	0.830	0.044	1.000	1.050
73/10/13	10 50		4.400	1.500	0.093	2.000	2.100
73/12/08	14 15		1.510	0.700	0.240	0.284	0.315
74/01/12	14 20		2.200	0.700	0.044	0.020	0.075
74/01/15	11 10		2.300	0.700	0.093	0.035	0.100
74/02/09	11 40		2.180	0.600	0.065	0.035	0.065
74/02/22	10 20		1.010	1.600	0.080	0.045	0.440

STORET RETRIEVAL DATE 76/07/22

010401 LS010401
34 19 30.0 056 09 30.0 4
SCARHAM CREEK
01 7.5 ALBERTVILLE
T/HUNTERSVILLE RESVR 040892
S BRDG AT DOUBLE BRDG 1 NNE HUSTLEVILLE
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	15	00	2.060	2.200	0.077	0.014	0.035
73/05/04	17	35	1.560	1.320	0.078	0.017	0.025
73/06/10	10	37	0.980	0.955	0.082	0.042	0.185
73/07/14	11	21	0.900	0.480	0.040	0.034	0.042
73/08/05	14	15	0.760	0.420	0.050	0.018	0.030
73/09/18	11	25	0.059	0.610	0.060	0.007	0.035
73/10/13	10	30	0.016	0.560	0.036	0.031	0.031
73/11/17	10	30	0.014	0.350	0.016	0.008	0.035
73/12/08	12	55	1.460	0.400	0.028	0.016	0.016
74/01/12	14	10	2.600	0.500	0.088	0.016	0.055
74/01/15	10	55	2.760	1.100	0.108	0.010	0.045
74/02/09	11	20	2.670	0.100	0.030	0.010	0.017
74/02/22	10	05	1.340	1.300	0.100	0.045	0.345

STORET RETRIEVAL DATE 76/07/22

01041
34 19 30.0 086 09 30.0 4
SHOAL CREEK
01 7.5 ALBERTVILLE
T/GUNTERSVILLE RESVR 040892
N BRDG AT DOUBLE BRDG 1 NNE HUSTLEVILLE
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	15 00		1.860	1.470	0.096	0.008	0.025
73/04/02	11 25		1.500	2.100	0.063	0.005K	0.015
73/05/04	17 30		1.340	0.400	0.039	0.005K	0.015
73/06/10	10 40		1.400	2.700	0.280	0.042	0.155
73/07/14	11 20		0.655	0.380	0.023	0.019	0.037
73/08/05	14 20		0.500	0.450	0.013	0.012	0.085
73/09/18	11 20		0.300	0.690	0.046	0.015	0.050
73/10/13	10 15		0.050	0.400	0.036	0.011	0.020
73/11/17	10 30		0.138	1.750	0.044	0.008	0.045
73/12/08	13 45		1.280	0.200	0.012	0.008	0.010
74/01/12	14 05		2.400	0.400	0.028	0.008	0.020
74/01/15	11 00		2.500	0.400	0.028	0.005K	0.020
74/02/09	11 15		2.400	0.400	0.030	0.005K	0.005K
74/02/22	09 55		1.340	0.400	0.045	0.015	0.090

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104F1 LS0104F1
34 23 30.0 086 01 00.0 4
TOWN CREEK
01 7.5 GROVE OAK
T/GUNTERSVILLE RESVR 040891
RT 23 BRDG 2.1 MI N OF GERALDINE
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	13 35		1.800	1.100	0.075	0.010	0.030
73/04/02	10 20		1.300	2.600	0.064	0.008	0.030
73/05/04	16 30		1.260	0.480	0.025	0.005K	0.027
73/06/10	09 00		0.830	4.200	0.132	0.012	0.042
73/07/14	09 45		0.880	0.580	0.148	0.035	0.077
73/08/05	13 15		0.280	1.050	0.200	0.020	0.085
73/09/18	10 30		0.270	26.000	24.000	0.690	1.400
73/10/13			0.160	12.500	11.000	0.280	0.510
73/11/17	10 05		0.120	6.100	4.300	0.168	0.375
73/12/08	13 30		1.700	0.200	0.056	0.008	0.025
74/01/12	13 30		1.840	0.500	0.028	0.008	0.055
74/01/15	09 45		2.300	0.300	0.040	0.005	0.035
74/02/04	10 05		1.900	0.300	0.035	0.005	0.015
74/02/22	08 40		0.990	2.100	0.085	0.050	0.750

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

010461 LS0104G1
34 25 00.0 086 02 30.0 4
BLACKOAK CREEK
01 7.5 GROVE OAK
T/GUNTERSVILLE RESVR 040891
RT 23 BRDG 1.7 MI SSE OF GROVE OAK
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	13	50	2.200	2.730	0.115	0.006	0.020
73/04/02	10	30	1.800		0.050	0.006	0.015
73/05/04	16	40	1.540	2.520	0.076	0.005K	0.020
73/06/10	09	10	1.360	3.100	0.240	0.008	0.045
73/07/14	09	50	1.040	0.360	0.023	0.005K	0.027
73/08/05	13	30	0.460	0.340	0.031	0.010	0.050
73/09/18	10	35	0.063	0.880	0.176	0.016	0.065
73/10/13	09	25	0.260	1.100	0.094	0.019	0.045
73/11/17	09	50	0.010K	1.250	0.040	0.017	0.155
73/12/12	13	15	1.800	0.300	0.020	0.005K	0.010
74/01/12	13	40	2.700	0.400	0.016	0.008	0.035
74/01/15	10	00	2.800	0.400	0.020	0.005K	0.025
74/02/09	10	10	2.700	0.100	0.010	0.005	0.005
74/02/22	08	45	1.280	0.700	0.035	0.025	0.195

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104M1 L50104M1
34 28 30.0 046 53 00.0 4
SOUTH SAUTY CREEK
01 7.5 GROVE OAK
T/GUNTERSVILLE RESVR 040891
HUCKS POCKET PA BR 2.5 MI N OF GROVE OAK
11EPALES 211120
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	01610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	14 10		2.300	1.470	0.096	0.012	0.037
73/04/02	13 45		1.760	1.980	0.154	0.013	0.030
73/05/04	16 55		1.460	0.880	0.040	0.007	0.020
73/06/10	09 40		1.020	0.980	0.063	0.024	0.065
73/07/14	10 15		1.240	0.531	0.034	0.055	0.123
73/08/05	14 00		0.150	0.690	0.023	0.006	0.045
73/09/18	10 50		0.026	1.075	0.069	0.010	0.040
73/10/13	09 10		0.010K	1.450	0.071	0.007	0.040
73/11/17	09 30		0.098	0.300	0.024	0.008	0.032
73/12/08	13 00		1.800	0.400	0.016	0.020	0.032
74/01/12	13 50		2.640	0.600	0.056	0.014	0.045
74/01/15	10 10		2.800	0.725	0.092	0.010	0.045
74/02/09	10 40		2.600	0.300	0.045	0.010	0.015
74/02/22	09 10		1.200	1.400	0.080	0.045	0.045

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104J1 LS0104J1
34 39 30.0 085 51 30.0 4
BRYANT CREEK
01 MAP JACKSON CO
T/GUNTERSVILLE RESVR 040891
BANK OF RD 1.8 MI SSW OF PISGAH
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	13 25		1.380	0.480	0.056	0.005K	0.015
73/04/08	11 00		0.370	1.600	0.170	0.019	0.055
73/05/05	09 30		13.600	1.260	0.168	0.006	0.006
73/06/02	09 30		0.210	0.190	0.031	0.012	0.015
73/08/04	13 45		0.370	0.900	0.115	0.014	0.025
73/09/18	10 30		0.037	0.400	0.064	0.007	0.020
73/10/06	11 30		0.030	0.560	0.072	0.005K	0.015
73/11/03	11 15		0.016	0.800	0.070		0.140
73/12/08	12 00		0.960	0.600	0.020	0.005K	0.005K
74/01/05	13 00		0.192	0.800	0.075	0.005K	0.005K
74/01/19			0.224	0.400	0.044	0.005K	0.020
74/02/02			0.164	0.300	0.010	0.030	0.090
74/02/16	13 00		1.120	0.900	0.050	0.015	0.160

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104K1 LS0104K1
34 46 00.0 085 42 30.0 4
FLAT ROCK CREEK
01 MAP JACKSON CO
T/GUNTERSVILLE RESVR 040691
HWY BRDG SW OF FLAT ROCK
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	12 40		0.780	0.920	0.064	0.007	0.025
73/04/08	09 30		0.680	1.600	0.168	0.025	0.085
73/05/05	08 00		1.060	3.500	0.170	0.048	0.135
73/06/02	10 45		0.340	0.390	0.063	0.014	0.050
73/07/14	11 15		0.410	0.735	0.099	0.017	0.063
73/08/04			0.231	1.260	0.340	0.008	0.025
73/09/16	09 30		0.622	1.050	0.338	0.012	0.075
73/10/05	12 00		0.110	0.680	0.105	0.010	0.040
73/11/03	12 00		0.115	1.400	0.132		0.230
73/12/05	12 30		0.792	0.400	0.036	0.008	0.010
74/01/05	13 30		1.430	0.900	0.044	0.005K	0.005
74/01/19			1.400	0.200	0.024	0.005K	0.020
74/02/02			1.260	0.400	0.030	0.015	0.125
74/02/16	12 00		0.860	1.100	0.080	0.015	0.140

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104L1 LS0104L1
34 47 00.0 085 47 00.0 4
DRY CREEK (COUN CREEK)
01 MAP JACKSON CO
T/GUNTERSVILLE RESVR 04[illegible]91
BRDG ON RD 1.8 MI E OF TIPPLE
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	12 25		0.231	0.840	0.078	0.005K	0.005K
73/04/08	10 00		14.900		0.189	0.005K	0.005K
73/05/05	07 30		13.400	0.100K	0.011	0.005K	0.005K
73/06/02	09 30		0.100	0.175	0.019	0.010	0.020
73/07/14	12 15		0.138	0.580	0.120	0.006	0.037
73/08/04	15 30		0.096	0.330	0.189	0.005K	0.010
73/09/16	09 00		0.580	0.490	0.330	0.005K	0.005K
73/10/06	10 00		0.094	0.610	0.330	0.014	0.020
73/11/03	12 15		0.031	0.800	0.136		0.140
73/12/08	10 20		0.480	0.700	0.076	0.005K	0.010
74/01/05	11 45		0.570	1.000	0.048	0.005K	0.007
74/01/19			0.528	0.600	0.062	0.005K	0.015
74/02/02			0.460	0.500	0.030	0.010	0.055
74/02/16	11 40		0.420	0.400	0.030	0.005K	0.050

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104M1 LS0104M1
34 40 30.0 085 51 00.0 4
LITTLE BRYANT CREEK
01 MAP JACKSON CO
T/SUNTERSVILLE RESVR 040891
BANK IN PISGAH BELO DOGWOODBRANCH CONFLU
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	13 35		1.280	3.600	0.115	0.005K	0.020
73/04/08	10 30		0.180	1.500	0.200	0.005K	0.005K
73/05/05	08 00		13.900	0.790	0.126	0.005K	0.005K
73/06/02	10 30		0.138	0.360	0.039	0.006	0.030
73/07/14	10 20		0.870	0.440	0.064	0.011	0.032
73/08/04	13 30		0.770	0.880	0.048	0.015	0.040
73/09/16	10 00		0.440	0.900	0.273	0.020	0.055
73/10/06	11 00		0.330	0.960	0.345	0.030	0.065
73/11/03	11 00		0.630	1.250	0.080		0.315
73/12/04	11 30		1.430	1.100	0.040	0.005K	0.015
74/01/05	12 30		2.640	0.700	0.044	0.005K	0.015
74/01/14			2.300	0.200	0.020	0.005K	0.015
74/02/02			1.260	0.300	0.035	0.015	0.110
74/02/16	12 25		1.260	0.500	0.025	0.010	0.075

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104N1 LS0104N1
34 54 30.0 085 39 30.0 4
LONG ISLAND CREEK
01 MAP JACKSON CO
T/GUNTERSVILLE RESVR 040891
MAY 91 BRDG NEAR MOUTH OF CREEK
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	14 45		0.520	1.000	0.082	0.020	0.050
73/04/07	15 00		0.273	1.260	0.037	0.005K	0.030
73/05/05	09 30		0.210	0.160	0.034	0.005K	0.025
73/06/02	12 30		0.147	0.620	0.050	0.022	0.060
73/07/14	09 30		0.170	0.510	0.019	0.006	0.050
73/08/04	09 30		0.370	0.300	0.063	0.013	0.030
73/09/15	10 30		0.340	0.580	0.105	0.017	0.040
73/10/06	09 30		0.126	0.520	0.058	0.007	0.050
73/11/03	10 00		0.330	0.700	0.062		0.170
73/12/08	10 00		0.360	0.900	0.038	0.016	0.030
74/01/05	11 00		0.300	0.600	0.036	0.012	0.015
74/01/19			0.588	0.900	0.020	0.010	0.025
74/02/02			0.184	0.500	0.015	0.030	0.040
74/02/16	11 05		0.530	0.800	0.050	0.005	0.035

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/07/22

0104P1 LS0104P1
34 55 00.0 084 56 00.0 4
#IDONS CREEK
01 MAP JACKSON CO
T/GUNTERSVILLE RESVR 033592
LEE HWY BRDG NEAR N JACKSON HOSPITAL
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	12 05		0.350	4.600	0.140	0.013	0.050
73/04/07	13 00		0.250	1.680	0.070	0.022	0.110
73/05/05	07 00		1.120	2.000	0.042	0.019	0.100
73/06/02	10 00		0.126	0.480	0.056	0.014	0.035
73/07/14	11 15		0.630	0.230	0.037	0.005K	0.010
73/08/04	11 30		0.550	0.100K	0.014	0.005K	0.020
73/09/15	15 00		0.500	0.660	0.050	0.022	0.075
73/10/06	14 00		0.390	0.215	0.030	0.005K	0.020
73/11/03	15 30		0.410	0.350	0.038		0.150
73/12/12	14 30		0.470	0.400	0.016	0.005K	0.005K
74/01/05			0.384	0.700	0.044	0.008	0.015
74/01/19			0.384	0.700	0.040	0.005K	0.020
74/02/02			0.340	0.700	0.045	0.010	0.065
74/02/16	15 30		0.160	1.000	0.030	0.015	0.110

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

010401 LS010401
34 52 30.0 085 52 00.0 4
CROW CREEK
01 MAP JACKSON CO
T/GUNTERSVILLE RESVR 040891
BRDG ON RD BELO RR BRDG NW EDG STEVENSON
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	13 00		0.294	1.600	0.099	0.013	0.045
73/04/07	14 00		0.180	0.560	0.021	0.009	0.070
73/05/05	10 45		0.195	1.050	0.034	0.005K	0.015
73/06/02	10 30		0.110	0.420	0.050	0.011	0.035
73/07/14	10 45		0.130	1.050	0.050	0.007	0.075
73/08/04	11 00		0.150	0.350	0.008	0.007	0.050
73/09/15	14 30		0.370	0.610	0.063	0.013	0.050
73/10/06	13 35		0.090	0.260	0.021	0.005K	0.030
73/11/03	14 15		0.140	1.150	0.290		0.155
73/12/08	14 45		0.310	0.300	0.012	0.008	0.015
74/01/05	11 30		0.224	0.830	0.052	0.008	0.020
74/01/19			0.276	0.400	0.028	0.005	0.035
74/02/02			0.176	0.600	0.035	0.010	0.065
74/02/16	15 00		0.100	1.500	0.045	0.010	0.150

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104R1 LS0104R1
34 51 30.0 083 54 00.0 4
COON CREEK
01 MAP JACKSON CO
T/GUNTERSVILLE RESVR 040891
END RD 1 MI S OF MASH
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	12 30		0.132	0.420	0.060	0.005K	0.012
73/04/07	13 30		0.044	0.750	0.019	0.006	0.025
73/05/05	10 15		0.060	1.500	0.048	0.005K	0.005K
73/06/02	10 15		0.180	0.200	0.039	0.011	0.020
73/07/14	10 30		0.410	0.390	0.076	0.007	0.040
73/08/04	10 30		0.336	0.260	0.048	0.010	0.030
73/09/15	14 00		0.300	0.720	0.085	0.012	0.040
73/10/06	13 30		0.189	0.180	0.026	0.006	0.020
73/11/03	14 00		0.115	0.150	0.036		0.140
73/12/04	14 30		0.232	0.500	0.016	0.008	0.010
74/01/05	11 20		0.176	0.600	0.016	0.016	0.020
74/01/19			0.232	0.600	0.028	0.005	0.030
74/02/02			0.176	1.000	0.030	0.010	0.081

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

010451 LS0104S1
34 47 30.0 085 59 00.0 4
MUD CREEK
01 MAP JACKSON CO
T/GUNTERSVILLE RESVR 040891
KENSHAW BRDG 1.5 MI S OF CARNS
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	14 00		0.770		0.160	0.038	0.090
73/05/05	11 30		0.740	1.400	0.042		0.025
73/06/02	11 00		0.610	0.330	0.034	0.015	0.045
73/07/14	10 00		1.080	0.210	0.022	0.007	0.030
73/08/04	10 00		1.000	0.100K	0.012	0.007	0.025
73/09/15	13 30		0.730	0.440	0.027	0.012	0.040
73/10/06	13 00		0.610	0.220	0.025	0.009	0.025
73/11/03	13 30		0.290	2.600	0.069		0.145
73/12/08	14 00		0.570	0.700	0.024	0.012	0.012
74/01/05	10 00		0.640	0.200	0.012	0.024	0.045
74/01/19			0.780	0.450	0.028	0.010	0.050
74/02/02			0.148	1.200	0.085	0.050	0.280
74/02/16	14 30		0.252	1.300	0.065	0.025	0.140

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104T1 LS0104T1
34 38 30.0 086 02 30.0 4
ROSEBERRY CREEK
01 7.5 SCOTTSBORO
T/GUNTERSVILLE RESVR 040891
ST RT 79 BRDG AT S TIP OF SCOTTSBORO
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	08 15		0.480	3.200	0.500	0.235	0.315
73/04/08	09 50		0.315	3.500	0.160	0.054	0.110
73/05/19	10 00		0.300	6.900	4.100	2.300	2.900
73/06/09	08 55		0.320	0.720	0.390	0.160	0.345
73/07/22	14 00		0.039	6.200	2.700	2.600	3.000
73/08/11	15 00		0.020	7.200	4.050	3.500	4.200
73/09/14	16 10		0.036	11.000	7.980	2.000	2.400
73/10/14	08 55		0.031	13.000	9.650	6.100	7.000
73/11/11	11 00		0.330	8.750	4.900	5.600	6.200
73/12/16	13 00		0.440	4.400	2.200	1.400	1.800
74/01/06	09 30		0.880	0.500	0.076	0.096	0.155
74/01/18	08 00		0.770	2.000	0.720	0.270	0.300
74/02/03	14 00		0.420	0.600	0.105	0.075	0.170
74/02/19	14 00		0.530	1.200	0.315	0.150	0.345

STORET RETRIEVAL DATE 76/07/22

010401 LS010401
34 25 30.0 086 23 30.0 4
TENNESSEE
01 7.5 GUNTERSVILLE
O/GUNTERSVILLE RESVR 040891
GAGING STATION N SIDE OF DAM
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	10	55	0.550	1.260	0.063	0.022	0.040
73/04/06	13	10	0.470	0.820	0.087	0.023	0.045
73/05/07	13	50	0.440	0.370	0.060	0.018	0.040
73/06/06	09	10	0.330	0.520	0.069	0.016	0.045
73/07/14	10	20	0.260	0.990	0.080	0.006	0.030
73/08/04	10	15	0.470	0.650	0.105	0.008	0.055
73/09/07	15	00	0.200	0.260	0.056	0.005K	0.035
73/10/13	13	10	0.240	0.360	0.060	0.021	0.037
73/11/17	13	10	0.360	0.200	0.036	0.032	0.035
73/12/11	10	10	0.360	0.400	0.048	0.016	0.045
74/01/09	09	05	0.480	0.500	0.040	0.024	0.075
74/01/23	11	25	0.540	0.500	0.040	0.016	0.090
74/02/03	11	10	0.580	0.100K	0.027	0.020	0.035
74/02/22	09	10	0.510	0.100	0.045	0.020	0.045

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

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 010402          47X402
35 00 30.0 085 37 00.0 4
TENNESSEE RIVER
01      7.5 SEQUATCHIE
I/GUNTERSVILLE RESVR      040891
NICKAJACK DAM 5 MI E OF S PITTSBURG
11EPALES                2111204
 0000 FEET  DEPTH  CLASS 00
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DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	10 00		0.500	0.720	0.072	0.019	0.045
73/04/07	13 45		0.590	1.150	0.154	0.025	0.050
73/05/05	10 00		0.450	0.830	0.074	0.016	0.045
73/06/02	09 50		0.315	0.440	0.097	0.018	0.060
73/07/15	10 40		0.370	0.460	0.060	0.011	0.040
73/08/04	09 30		0.378	0.360	0.046	0.011	0.035
73/09/15	09 00		0.310	0.340	0.092	0.038	0.040
73/10/06	16 00		0.360	0.480	0.042	0.017	0.040
73/11/04	10 00		0.350	0.400	0.060	0.033	0.070
73/12/09	10 30		0.352	0.200	0.048	0.020	0.055
74/01/06	10 00		0.510	0.700	0.060	0.020	0.075
74/01/20			0.600	1.100	0.084	0.020	0.090
74/02/03			0.360	0.300	0.025	0.015	0.040
74/02/16	10 30		0.528	0.400	0.045	0.020	0.055

STORET RETRIEVAL DATE 76/07/22

0104V1 47X4V1
35 03 00.0 085 37 30.0 4
SEQUATCHIE RIVER
01 7.5 S PITTSBURG
T/GUNTERSVILLE RESVR 040891
E BOUND BRDG ON US 24 2 MI E OF KIMBALL
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	09	30	0.470	0.520	0.025	0.00K	0.025
73/04/07	13	30	0.399	1.260	0.080	0.018	0.060
73/05/05	09	15	0.450	3.780	0.110	0.006	0.025
73/06/02	09	40	0.450	0.560	0.040	0.022	0.100
73/07/15	11	20	0.460	0.630	0.030	0.022	0.085
73/08/11	10	10	0.270	0.350	0.082	0.009	0.020
73/09/15	09	30	0.399	0.310	0.045	0.023	0.045
73/10/06	16	30	0.410	0.210	0.032	0.015	0.040
73/11/04	10	30	0.330	0.200	0.017	0.017	0.035
73/12/04	11	30	0.552	0.500	0.016	0.005K	0.025
74/01/05	10	10	0.490	0.800	0.052	0.012	0.025
74/01/20			0.610	0.200	0.028	0.012	0.045
74/02/03			0.280	0.400	0.020	0.010	0.040
74/02/16	10	10	0.350	1.000	0.075	0.015	0.095

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104#1 4/X4#1
35 02 00.0 085 41 30.0 4
RATTLE CREEK
01 7.5 S PITTSBURG
T/GUNTERSVILLE RESVR 040891
BRDG ON US 72 IN KIMBALL
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	09 00		0.240	0.560	0.025	0.007	0.045
73/04/07	14 20		0.200	1.340	0.044	0.008	0.035
73/05/17	12 00		0.210	0.270	0.020	0.006	0.020
73/06/0?	09 10		0.150	0.295	0.028	0.009	0.020
73/07/15	14 00		0.280	0.270	0.018	0.008	0.030
73/08/04	10 25		0.260	0.240	0.022	0.005K	0.015
73/09/15	09 45		0.360	0.500	0.032	0.008	0.050
73/10/06	16 10		0.250	0.940	0.172	0.005K	0.025
73/11/04	10 45		0.250	0.850	0.035	0.007	0.020
73/12/09	12 30		0.310	0.700	0.024	0.005K	0.005K
74/01/06	10 45		0.276	0.500	0.036	0.008	0.010
74/01/20			0.264	0.400	0.020	0.005K	0.080
74/02/03			0.216	0.450	0.020	0.005	0.040
74/02/16	10 55		0.200	0.400	0.030	0.010	0.040

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0104AA P01104AA P003300
34 16 45.0 080 23 30.0 4
BROWNS CREEK (HUNTERSVILLE)
01 7.5 ARMM
T/HUNTERSVILLE RESERVOIR 040H92
BROWNS CREEK
11EMALES 2141204
0000 FEET DEPTH CLASS 01

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/04/05	07	30							
CP(T)-			0.297	9.500	1.580	2.800	4.400	2.610	3.330
73/04/05	16	30							
73/05/03	07	30							
CP(T)-			0.175	6.300	1.300	3.780	4.730	4.320	3.600
73/05/03	16	30							
73/06/11	07	45							
CP(T)-			0.210	10.500	1.120	1.900	2.900	2.160	2.790
73/06/11	16	45							
73/07/17	07	30							
CP(T)-			0.260	11.500	2.200	5.800	7.350	1.900	2.100
73/07/17	16	30							
73/08/13	08	10							
CP(T)-			0.050	9.700	1.320	1.600	4.400	2.000	1.900
73/08/13	17	10							
73/09/24	08	30							
CP(T)-			0.060	7.900	2.100	2.650	4.000	1.320	1.160
73/09/24	17	00							
73/10/18	08	30							
CP(T)-			0.030	9.700	1.700	3.200	4.500	1.360	1.400
73/10/18	16	30							
73/11/30	08	00							
CP(T)-			0.070	10.000	2.730	3.990	5.300	3.100	2.800
73/11/30	17	00							
74/01/02	07	30							
CP(T)-			2.880	4.000	0.260	0.510	0.850	2.880	2.380
74/01/02	16	30							
74/03/13	10	00	0.120	9.300	2.000	4.850	6.600	1.530	1.700
74/04/04	15	40	0.480	10.000	1.050	2.200	2.700	2.100	1.500
74/04/29	09	30	0.280	12.000	1.450	2.600	4.300	0.960	1.200
74/06/05	15	30	0.440	19.000	3.800	3.500	6.300	1.800	1.000

STORET RETRIEVAL DATE 76/07/22

0104TA TF0104TA P008P00*
34 39 25.0 086 02 30.0 4
SCOTTSBORO #1
01 7.5 SCOTTSBORO
T/SUNTERSVILLE RESERVOIR 040891
ROSEBERRY CREEK
11EPALES 2141204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/04/11	10 00								
CRIT:-			0.590	13.200	5.600	3.700	4.800	2.000	2.000
73/04/11	14 00								
73/05/15	14 00		0.500	15.400	8.000	5.700	7.000	1.000	1.000
74/01/10	14 00		0.360	5.650	1.000	1.847	2.800	2.500	2.500
74/02/05	10 00								
CRIT:-								2.500	2.500
74/02/05	14 00								
74/03/25	10 00								
CRIT:-			1.680	6.400	0.086	1.750	2.700	2.500	2.500
74/03/25	14 00								
74/04/10	10 00								
CRIT:-			0.120	25.000	12.500	5.700	9.400	2.500	2.500
74/04/10	14 00								
74/05/14	10 00								
CRIT:-			0.040	38.000	17.000	5.000	7.300	2.500	2.500
74/05/14	14 00								
74/05/30	10 00								
CRIT:-			0.200	11.000	4.000	2.020	2.810	2.500	2.500
74/06/30	14 00								
74/06/26	10 00								
CRIT:-			0.064	14.000	4.200	2.900	3.200	2.500	2.500
74/06/26	14 00								
74/07/24	10 00								
CRIT:-			0.600	23.000	8.800	6.100	8.000	2.500	2.500
74/07/24	14 00								
74/08/14	10 00								
CRIT:-			0.300	17.000	7.900	3.300	4.400	2.500	2.500
74/08/14	14 00								
74/09/04	10 00								
CRIT:-			0.060	19.350	8.700	4.550	5.975	2.500	2.500
74/09/04	14 00								
74/09/25	10 00								
CRIT:-			0.100	20.000	9.000	8.800	12.000	2.500	2.500
74/09/25	14 00								
74/10/16	10 00								
CRIT:-			0.320	17.000	7.600	4.500	5.750	2.500	2.500
74/10/16	14 00								

STORET RETRIEVAL DATE 76/07/22

0104TN AS0104TN P000800
34 41 18.0 086 03 40.0 4
SCOTTSHORO #2
01 7.5 SCOTTSBORO
T/GUNTERSVILLE RESERVOIR #40891
ROSEBERRY CREEK
11EPALES 2141204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/04/11	09 45								
CP(T)-			0.045	13.000	0.420	2.000	3.900	0.025	0.025
73/04/11	13 45								
73/05/15	14 00		0.060	16.000	0.010	5.400	7.000	0.015	0.015
74/01/10	14 00		0.080	4.000	0.170	1.040	1.650	0.030	0.025
74/02/05	14 00								
CP(T)-								0.025	0.025
74/02/05	16 00								
74/03/25	10 00								
CP(T)-			0.360	5.500	0.120	1.550	2.800	0.025	0.025
74/03/25	14 00								
74/04/19	10 00								
CP(T)-			0.040	11.000	0.670	4.100	6.000	0.025	0.025
74/04/19	14 00								
74/05/14	10 00								
CP(T)-			0.040	16.000	0.240	3.600	5.500	0.035	0.025
74/05/14	14 00								
74/06/10	10 00								
CP(T)-			0.080	19.000	1.580	4.050	6.800	0.025	0.025
74/06/10	14 00								
74/06/26	10 00								
CP(T)-			0.040	16.000	2.000	4.700	6.600	0.025	0.025
74/06/26	14 00								
74/07/24	10 00								
CP(T)-			0.235	13.000	0.500	3.200	4.800	0.035	0.035
74/07/24	14 00								
74/08/14	10 00								
CP(T)-			1.240	8.300	0.081	2.400	3.400	0.035	0.035
74/08/14	14 00								
74/09/09	10 00								
CP(T)-			0.320	21.000	1.720	3.050	5.625	0.035	0.035
74/09/09	14 00								
74/09/25	10 00								
CP(T)-			0.200	25.000	6.900	4.850	7.900	0.035	0.035
74/09/25	14 00								
74/10/16	10 00								
CP(T)-			0.480	14.000	0.210	0.900	3.400	0.035	0.035
74/10/16	14 00								

STORET RETRIEVAL DATE 76/07/22

0104UA TP0104UA P0007000*
34 21 40.0 086 18 44.0 4
GUNTERSVILLE
01 7.5 GUNTERSVILLE
T/GUNTERSVILLE RESERVOIR 040892
TENNESSEE RIVER
11EPALES 2141204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/04/05	08 00								
CP(T)-			3.037	33.600	9.125	5.300	8.900	0.671	0.559
73/04/05	17 00								
73/05/03	08 00								
CP(T)-			0.182	16.820	9.550	6.950	7.400	0.651	0.415
73/05/03	17 00								
73/06/11	07 30								
CP(T)-			0.011	21.000	8.100	2.020	3.000	0.777	0.828
73/06/11	16 30								
73/07/17	07 45								
CP(T)-			0.210	29.000	7.800	4.300	7.400	0.960	0.850
73/07/17	16 45								
73/08/13	07 00								
CP(T)-			0.920	6.800	0.820	2.400	4.400	0.762	0.759
73/08/13	16 00								
73/09/28	07 15								
CP(T)-			0.130	18.900	5.800	8.600	9.900	0.823	0.717
73/09/28	16 15								
73/10/18	07 30								
CP(T)-			0.010K	20.000	7.400	4.300	4.800	0.631	0.596
73/10/18	16 15								
73/11/30	07 00								
CP(T)-			4.200	7.500	0.670	5.600	7.100	1.080	0.640
73/11/30	16 00								
74/01/02	07 00								
CP(T)-			15.000	15.500	4.800	6.500	8.700	0.640	0.457
74/01/02	16 00								
74/03/12	15 30		0.040	72.000	8.400	1.100	12.000	0.574	0.560
74/04/04	15 00		0.480	9.000	8.300	5.500	6.100	0.644	0.564
74/04/29	09 00		0.120	29.000	13.500	7.850	9.600	0.800	0.500
74/06/05	14 45		0.275	18.000	9.000	5.800	6.300	0.801	0.590

K VALUE KNOWN TO BE
LESS THAN INDICATED

STONET RETRIEVAL DATE 76/07/22

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                                                                    01040UH                 A5U1040UH
                                                                  34 20 50.0 084 17 00.0 4
                                                                  EAST LAKE (GUNTERSVILLE)
                                                                  01       7.5 GUNTERSVILLE
                                                                  T/GUNTERSVILLE RESERVOIR 040892
                                                                  IE TENNESSEE RIVER
                                                                  11EPALES                        2141204
                                                                   0000 FEET  DEPTH  CLASS 00
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DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/04/05	08	00							
CP(T)-			11.200	8.000	5.300	4.600	5.100	0.017	0.043
73/04/05	17	00							
73/05/03	08	10							
CP(T)-			0.013	18.300	6.750	4.300	5.500	0.094	0.077
73/05/03	17	10							
73/06/11	08	05							
CP(T)-			0.210	23.000	9.000	3.700	6.700	0.144	0.115
73/06/11	17	00							
73/07/17	08	00							
CP(T)-			0.280	18.000	5.200	3.300	4.700	0.030	0.040
73/07/17	17	00							
73/08/13	07	30							
CP(T)-			0.310	27.000	7.000	3.500	7.700	0.071	0.063
73/08/13	16	30							
73/09/24	07	30							
CP(T)-			0.080	35.000	21.000	9.300	12.000	0.071	0.059
73/09/24	16	30							
73/10/14	08	00							
CP(T)-			0.252	18.500	5.800	4.600	5.700	0.076	0.068
73/10/14	16	00							
73/11/30	07	30							
CP(T)-			0.090	47.000	27.000	10.400	12.000	0.081	0.070
73/11/30	16	30							
74/01/02	07	45							
CP(T)-			0.360	23.000	6.400	5.200	6.600	0.149	0.144
74/01/02	16	45							
74/03/13	09	00	0.720	19.000	8.400	6.500	7.600	0.031	0.045
74/04/04	15	30	0.320	10.000	9.300	5.700	6.600	0.048	0.041
74/04/24	09	15	0.440	35.000	16.000	9.600	12.000	0.031	0.036
74/06/05	15	10	0.360	13.000	5.500	2.200	2.800	0.031	0.038

STORET RETRIEVAL DATE 76/07/22

0104YA P0104YA P000432
34 50 30.0 085 49 30.0 4
STEVENSON LAGOON
01 JACKSON CO MWY
T/GUNTERSVILLE RESERVOIR 040891
BENGIS CREEK/CROW CREEK INLET
11EPALES 2141204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/10/02	13 30		0.420	21.000	0.310	7.800	28.000		0.076
73/11/27	15 00		0.540	14.500	0.240	5.500	10.500	0.076	0.079
74/02/06	09 30		1.080	13.000	0.530	2.880	4.400		0.076
74/04/08	12 15		0.640	12.000	0.580	5.100	13.500	0.076	0.076
74/06/10	11 00		0.400	22.000	2.700	6.600	15.000	0.076	0.079
74/08/04	10 00		0.120	20.000	2.630	4.400	6.500	0.076	0.079

APPENDIX E

PARAMETRIC RANKINGS OF LAKES SAMPLED BY NES IN 1974 STATE OF ALABAMA

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P
0101	BANKHEAD LAKE	0.029	0.770	452.667	4.017	14.900	0.007
0103	GANTT RESERVOIR	0.029	0.300	465.774	2.144	14.000	0.008
0104	GUNTERSVILLE RESERVOIR	0.044	0.480	461.111	8.567	12.200	0.014
0105	HOLT LOCK AND DAM	0.018	0.835	449.417	2.183	13.600	0.005
0106	LAY LAKE	0.075	0.390	470.778	7.056	13.000	0.032
0107	MARTIN LAKE	0.017	0.170	435.250	6.407	15.000	0.004
0108	MITCHELL LAKE	0.053	0.290	466.000	6.211	12.400	0.022
0109	PICKWICK LAKE	0.056	0.535	455.000	2.450	11.900	0.035
0112	WEISS RESERVOIR	0.092	0.260	478.389	11.261	14.900	0.034
0114	WILSON LAKE	0.053	0.460	447.714	7.400	10.200	0.022
0115	LAKE PURDY	0.049	0.170	437.889	12.711	15.000	0.014

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN JU	MEDIAN DISS ORTHO P	INDEX NO
0101	HANKHEAD LAKE	75 (7)	10 (1)	60 (6)	70 (7)	25 (2)	80 (8)	320
0103	GANTT RESERVOIR	75 (7)	60 (6)	30 (3)	100 (10)	40 (4)	70 (7)	375
0104	GUNTERSVILLE RESERVOIR	60 (6)	30 (3)	40 (4)	20 (2)	80 (8)	55 (5)	285
0105	HULT LOCK AND DAM	90 (9)	0 (0)	70 (7)	90 (9)	50 (5)	90 (9)	390
0106	LAY LAKE	10 (1)	50 (5)	10 (1)	40 (4)	60 (6)	20 (2)	190
0107	MARTIN LAKE	100 (10)	95 (9)	100 (10)	50 (5)	5 (0)	100 (10)	450
0108	MITCHELL LAKE	40 (4)	70 (7)	20 (2)	60 (6)	70 (7)	35 (3)	295
0109	PICKWICK LAKE	20 (2)	20 (2)	50 (5)	80 (8)	90 (9)	0 (0)	260
0112	WEISS RESERVOIR	0 (0)	80 (8)	0 (0)	10 (1)	25 (2)	10 (1)	125
0114	WILSON LAKE	30 (3)	40 (4)	80 (8)	30 (3)	100 (10)	35 (3)	315
0115	LAKE PURDY	50 (5)	95 (9)	90 (9)	0 (0)	5 (0)	55 (5)	295

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
1	0107	MARTIN LAKE	450
2	0105	HOLT LOCK AND DAM	390
3	0103	GANTT RESERVOIR	375
4	0101	BANKHEAD LAKE	320
5	0114	WILSON LAKE	315
6	0115	LAKE PURDY	295
7	0108	MITCHELL LAKE	295
8	0104	GUNTERSVILLE RESERVOIR	285
9	0109	PICKWICK LAKE	260
10	0106	LAY LAKE	190
11	0112	WEISS RESERVOIR	125